

What is claimed is:

1. A bulk acoustic wave multiplexer controlled by micro-electro-mechanical switches, it comprises:

5 a substrate;

a wave-filtering device disposed on the substrate;

an input port disposed on one side of the wave-filtering device;

an output port disposed on another side of the wave-filtering device; and

micro-electro-mechanical switches disposed on the wave-filtering device
10 for controlling the bulk acoustic wave multiplexer.

2. The bulk acoustic wave multiplexer as claimed in claim 1, wherein, the electro-mechanical switches can be driven by any actuating methods, such as: electrostatic driving, thermal-electrical driving, piezoelectrical driving, etc.

- 15 3. The bulk acoustic wave multiplexer as claimed in claim 1, wherein, while the micro-electro-mechanical switch is contacted with the upper electrode of the bulk acoustic wave multiplexer, the bulk acoustic wave multiplexer can be controlled to be switched off.

- 20 4. The bulk acoustic wave multiplexer as claimed in claim 1, wherein, while the micro-electro-mechanical switch is apart from the upper electrode of the bulk acoustic wave multiplexer, the bulk acoustic wave multiplexer can be controlled to be switched on.

5. A bulk acoustic wave multiplexer controlled by micro-electro-mechanical switches, it comprises:

an antenna;

an output/input port connected with the antenna;

micro-electro-mechanical switches; and

input ports that can be connected with outward.

5 6. The bulk acoustic wave multiplexer as claimed in claim 5, wherein the signals from the antenna can be controlled by the micro-electro-mechanical switches to enter the receiving input port.

7. The bulk acoustic wave multiplexer as claimed in claim 6, wherein the signals from the input ports can be controlled by the micro-electro-mechanical switches to enter the transmitting terminal, and then the signals are transmitted by the antenna.

8. A bulk acoustic wave multiplexer controlled by micro-electro-mechanical switches, it comprises:

output/input ports;

15 micro-electro-mechanical switches; and

output ports.

9. The bulk acoustic wave multiplexer as claimed in claim 8, wherein the signals are inputted from the output/input ports, then, under the control of the micro-electro-mechanical switches, the signals are wave-filtered and outputted, thus, the function of wave-filtering multiplexing is achieved.

20 10. The bulk acoustic wave multiplexer as claimed in claim 9, wherein the wave-filtering devices controlled respectively by the micro-electro-mechanical switches can be various channels with same

frequency.

11. The bulk acoustic wave multiplexer as claimed in claim 9, wherein the wave-filtering devices controlled respectively by the micro-electro-mechanical switches can be various channels with various frequencies.

12. A bulk acoustic wave multiplexer controlled by micro-electro-mechanical switches, it comprises:

an upper substrate;

micro-electro-mechanical switches and driving circuits formed on the upper substrate;

a lower substrate;

wave-filtering units and connecting circuits formed on the lower substrate;

wherein, the upper and lower substrates are connected together to form a bulk acoustic wave multiplexer controlled by micro-electro-mechanical switches.

13. The bulk acoustic wave multiplexer as claimed in claim 12, wherein the upper and lower substrates are connected by flip-chip or CSP (chip scale package).

14. The bulk acoustic wave multiplexer as claimed in claim 13, wherein the driving circuits for driving the micro-electro-mechanical switches are CMOS circuits.